

12. NOTES ON BITES BY THE SAW-SCALED VIPER,
ECHIS CARINATUS IN THE DEOGAD AREA OF
RATNAGIRI DISTRICT, MAHARASHTRA

Dr. M. R. Nene, a general practitioner who has a clinic in the village of Jamsande, a few miles from Deogad town, has treated over 300 cases of *Echis* bite since 1955. During the heavy monsoon that this coastal area receives, the viper *Echis carinatus* becomes the most abundant terrestrial snake. Some of the points of interest and brief case histories noted down during an informal interview on July 24, 1969, are given below.

The village people of Deogad Taluka, seem more inclined to see a doctor in the event of a snakebite than in other areas of Maharashtra and India. Except where a medical doctor becomes well-known for successfully treating snakebites, the people generally call upon a local 'medicine man' or holy man to try to save the victim. The annual collection of *Echis* in this area for Haffkine Institute's serum production programme has helped create this awareness. Out of 300 bites there have been 4 deaths—each time these were cases when the victim came or was brought 4 to 7 days after the bite, when loss of blood and associated complications had brought him to the critical point. Patients usually died of heart failure after continual hæmorrhage for days. Patients that recovered from severe systemic symptoms were treated for anæmia.

The oldest patient was 65 years, youngest 2 years; average 20 to 40 years, more males than females. Most bites occurred from July to October; September being the month of most bites. Eighty-five per cent of bites were in daytime; bites used to be higher at night when the road was a simple dirt road, pointing to the Viper's habit of lying in loose sand or dirt. Ninety per cent of bites were on the feet, ten per cent on hands. Most bites occurred as labourers cut grass, piled stones and worked on crops; a few bites occurred in homes. Most patients came within 1-2 hours after the bite; of these, most had come straight to the doctor without seeking any local cure. Others came 1-7 days later, usually after trying local remedies, and occasionally after trying other medical doctors. Ninety per cent of the patients came with some sort of tourniquet, usually too tight. Dr. Nene does not employ or recommend mechanical measures such as cut/suction to try to withdraw venom from the site of bite.

Early symptoms of *Echis carinatus* bite include: fang-punctures leaking blood; localized œdema (80%) 6 to 7 inches up the extremity; severe pain (burning at site of bite in all) ascending up to upper extremity in most; pain in glands in armpit (this may be severe even

when local swelling is very slight or absent). After 1 hour there may be sharp 'lightning' pains up the arm (or leg). Ten to twelve hours after the bite, bleeding from the gums is a common systemic symptom. Later, blood in urine, fæces, sputum. In later stages of severe envenomation, anal and vaginal bleeding may occur. In a lethal bite, in from 12 hours to one or more weeks, pulse may become feeble, blood pressure drops to unrecordable and the patient expires. In two fatal cases convulsions preceded death.

Dr. Nene treats every snake bite case as an emergency. When symptoms of envenomation are manifest in a victim, he makes a slow intravenous injection of Haffkine Polyvalent Antivenin Serum. He keeps syringes of cortisone and adrenalin prepared for the possibility of allergic reaction to the horse serum. Anaphylaxis is a hazard of intravenous injection of any horse serum without prior testing for patient sensitivity. Dr. Nene says that five per cent of the patients showed moderate to severe allergic reaction, including urticaria, shock symptoms. He has observed no allergic shock in patients receiving intramuscular horse serum injections.

Case histories: (a) 20 year old male worker came after 7 days, hæmorrhaging moderately. He had been treated with antivenin (intramuscular) one day following the bite and sent home by another doctor. Efforts of village medicine men at stopping bleeding from various sites failed. Antivenin was immediately injected intravenously and the man went into allergic shock. He was treated for shock for 1½ hours and again antivenin was injected. The man recovered in one day.

(b) Male worker came on 4th day after bite, bleeding profusely; blood in urine, anal bleeding etc. Antivenin, Vitamin K, Calcium Gluconate were administered. Patient recovered in 16 hours, except for anæmia.

After treatment with sufficient doses (1 to 3 vials) intravenously, pain and bleeding cease rapidly. Swelling remains for 3 to 4 days. In the 300 cases of *Echis* bite there were only 3 known cases of necrosis. These were very slight cases, involving sloughing of tissue near the fang marks. No other complications (except anæmia, sometimes acute) following recovery from bites were noted. No post-mortems in fatal cases.

Dr. Nene has treated 6 Russell's Viper bites, 5 proved fatal. He feels that the time factor is far more critical in this species than others because of quantity of venom injected and the rapid massive clotting action of one of the venom constituents, which results in rapid death by heart failure. He also feels that the titer of the Haffkine Polyvalent Antivenom Serum to this venom may be lower than desirable, or may be slow in its neutralising effect on *Vipera*

russellii venom. Two cobra bites during the 14 year period were treated successfully.

Though we have no additional data, such as how many snake-bite victims in the area did not come to the doctor, it appears that *Echis carinatus* bites are fatal only in cases of exceptional envenomation and only after a matter of days after the bite (less than 2% of the 300 in this study). This points to death by complications of, rather than direct envenomation.

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13. CAPTURE OF A WHALE SHARK *RHINEODON TYPUS* SMITH IN RATNAGIRI WATERS

On 11 May 1965, a large shark was landed at Mirkarwada, Ratnagiri. The fish was identified as *Rhineodon typus* Smith based on its characteristic colour pattern and three longitudinal ridges on either side of the mid-dorsal region. The fish was caught in 13 fathoms in nylon gill nets, and was towed ashore.

This is the first record of the species from Ratnagiri. Recording of the capture of the Whale shark *Rhineodon typus* off the coast of India has been considered as a matter of interest, as these large fish occur rather rarely. Prater (1941) reviewed the data of the occurrence of the species from Indian waters. Since then, there have been a few additions, Kulkarni (1948) from Bombay, Chacko & Mathew (1954) from Malabar coast, Kaikini *et al.* (1959) from Mangalore, and Gopalan (1962) from Veraval, Gujarat State. Silas & Rajagopalan (1963) who reported it from Tuticorin have suggested a proforma for collecting detailed information whenever records of the Whale sharks are made. Information on the lines suggested by them is given below. The measurements are in millimetres.

Total length.....	5180
Standard length.....	4000
Head length.....	1380
Girth of body.....	1000
Width of mouth.....	820
Vertical height of 1st dorsal.....	460
Vertical height of 2nd dorsal.....	230
Length of caudal along upper margin.....	1480